



EUCI Presents Two Courses on:

SHALE GAS:

A GLOBAL
ENERGY
ALTERNATIVE

September 20, 2010

Hyatt Regency Calgary

TECHNICAL ASPECTS
OF SHALE GAS
DEVELOPMENT

September 21-22, 2010

• Calgary, AB



EUCI is authorized by IACET to offer 0.6 CEUs for attending "Global Energy" and 1.2 CEUs for attending "Technical Aspects".

OVERVIEW

The course provides a broad overview of the shale plays that occur in various parts of the globe, shows a ranking criteria to evaluate and identify the best shale gas plays, points to the geologic period of predominant occurrence of shale plays, shows tectonic similarities of some of these shale plays to the U.S. shale plays, discusses technologies that are best suited to exploit these shale resources and points to the pipeline and infrastructure availability and investment suitability from the viewpoint of socioeconomic and political factors. Efforts are expended to make the course interactive.

TRAINING/LEARNING OBJECTIVES

This one-day course will show how, in an era of depleting conventional oil and gas resources, shale gas can play a significant role in meeting global energy demand. The course will provide attendees with a fundamental geochemical and geophysical understanding of identifying shale as gas plays. Attendees will do or learn to do the following:

- Identify the role of shale gas in world energy markets and its impacts
- Review geochemical and geophysical methods of shale gas identification
- Recognize U.S. shale gas reservoirs – location and characteristics
- Describe tectonic, structural and depositional framework of shale gas occurrence
- Discuss criteria that may be employed for identification of large shale gas plays globally
- Identify major shale gas plays outside the U.S.
- Review technology to better characterize and model shale reservoirs
- Review technology to maximize production from shale gas reservoirs
- Review factors to consider in global shale gas development
- Review the worldwide network of existing and new gas pipelines
- Discuss gas price forecast and economics of shale gas development
- Discuss future trends and directions of shale gas

WHO SHOULD ATTEND

- Company executives
- Exploration managers
- New venture managers
- Asset managers
- Asset development managers
- Business development managers
- Venture capitalists
- Attorneys new to the industry
- Accounting, IT personnel and support personnel that need a better understanding of their firm's competitive environment
- Employees new to the industry or with limited industry experience
- New energy market participants
- Gas marketers and brokers
- Energy service companies
- Energy purchasing agents
- Engineers
- Geoscientists
- Government technocrats

IACET



EUCI has been approved as an

Authorized Provider by the International Association for Continuing Education and Training (IACET), 1760 Old Meadow Road, Suite 500, McLean, VA 22102. In obtaining this approval, EUCI has demonstrated that it complies with the ANSI/IACET Standards, which are widely recognized as standards of good practice internationally.

As a result of their Authorized Provider membership status, EUCI is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET Standards.

EUCI is authorized by IACET to offer 0.6 CEUs for this program.

Requirements for Successful Completion of Program

Participants must sign in/out each day and be in attendance for the entirety of the course to be eligible for continuing education credit.

Instructional Methods

Instructional methods will include a PowerPoint presentation, interactive discussions and flip charts.

PROGRAM AGENDA

MONDAY, SEPTEMBER 20, 2010

8:00 – 8:45 a.m. **Registration and Continental Breakfast**

8:45 – 9:15 a.m. **Introduction, Logistics and Course Overview**

Overview of the current status of biomass legislative drivers and EPA reporting requirements

9:15 a.m. – 12:00 p.m.

- Worldwide energy supply and demand and the role of shale gas and its impact on the global energy scenario
- Comparing shale gas with other energy alternatives
- Environmental impact of shale gas usage and development
- Compressed natural gas as an alternative to gasoline and diesel to operate vehicles
- Shale gas – a game-changer in European energy market
- Effect of shale gas on worldwide LNG supply
- Whether offshore conventional gas development will be affected by shale gas
- Tectonic, structural and depositional framework of shale gas occurrence
- U.S. shale gas reservoirs – locations and characteristics
- Transitioning from U.S. shale reservoirs to global shale reservoirs
- Tectonic relationship between North American and North African shale

12:00 – 1:00 p.m. **Group Luncheon**

1:00 – 4:15 p.m.

- International shale reservoirs outside of the U.S.
- Technology to better characterize and model shale reservoirs to optimize production
- Shale gas development: prioritization of technology
- Economics of shale gas resources development
- Pore to pipeline to users: marketing, impact of hydrocarbon prices
- Gas pipeline and marketing, price scenario and geopolitical/social issues
- Whether world will embrace a switch from oil to natural gas

4:15 – 4:45 p.m.

- Q&A
- Concluding remarks

SHALE GAS: TECHNICAL ASPECTS OF SHALE GAS DEVELOPMENT

September 21-22, 2010

OVERVIEW

This two-day course addresses the role of shale gas as a new energy source; deals with geological, geochemical, geophysical, petrophysical, drilling, completion, production, optimization and economic evaluation of shale reservoir development; and addresses why shale can be gas-prone or oil-prone or both. The course sheds light on the current status of our knowledge of shale gas development and discusses the technologies that are better suited to exploit shale gas resources. The course also conducts a discussion on location of shale gas plays in the U.S. and the knowledge gained from producing shale gas reservoirs of the U.S. The course will have an interactive format.

WHAT YOU WILL LEARN

This two-day course will show how shale gas as an unconventional energy source can play a major role in meeting global energy demand. It will provide attendees an understanding of identifying shale as gas plays. Attendees will do or learn to do the following:

- Discuss role of shale gas as an unconventional energy source and its impacts
- Review geochemical and geophysical methods of shale gas identification and evaluation
- Identify tectonic, structural and depositional framework of shale gas occurrence
- Review how ductile shale differs from brittle shale
- Discuss logging and petrophysical assessment of shale reservoirs
- Review naturally occurring fractured shale reservoirs and how to identify them
- Identify why horizontal drilling is important for shale gas development
- Describe placement and orientation of horizontal wells
- Explain choice of optimal horizontal length
- Describe avoidance of geological hazards and role of 2D and 3D seismic
- Explain measurement of stress regime in shale reservoirs
- Discuss multi-stage fracturing in horizontal wells – key to success in shale gas development
- Identify sizing of fracture stages
- Explain choice of proppant size and strength and fracture fluid
- Review slick water frac, proppant placement in horizontal wells
- Discuss dendritic and longitudinal fractures
- Discuss fracture height growth and containment
- Review microseismic monitoring of fracture growth and propagation
- Discuss criteria that may be employed for identification of large shale gas plays globally
- Identify technology to better characterize and model shale reservoirs
- Identify technology to maximize production from shale gas reservoirs
- Review worldwide network of existing and new gas pipelines
- Relate gas price forecast and economics of shale gas development
- Infer future trend and directions

WHO SHOULD ATTEND

- Exploration managers
- New venture managers
- Asset managers
- Asset development managers
- Accounting, IT personnel and support personnel that need a better understanding of their firm's competitive environment
- Employees new to the industry or with limited industry experience
- New energy market participants
- Energy service companies
- Energy purchasing agents
- Reservoir, production, drilling/well development and exploitation engineers
- Geoscientists
- Government technocrats

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EUCI is authorized by IACET to offer 1.2 CEUs for this program.

Requirements for Successful Completion of Program

Participants must sign in/out each day and be in attendance for the entirety of the course to be eligible for continuing education credit.

Instructional Methods

Instructional methods will include a PowerPoint presentation, interactive discussions and flip charts.

PROGRAM AGENDA

TUESDAY, SEPTEMBER 21, 2010

8:00 – 8:45 a.m.

Registration and Continental Breakfast

8:45 – 9:15 a.m.

Introduction, Logistics and Course Overview

9:15 a.m. – 12:00 p.m.

Geology, Geochemistry and Geophysics of Shale

Reservoirs

- Shale gas as a new energy source on world stage
- Role of shale gas in meeting world's energy demand
- Definition of shale
- Sedimentology and environmental settings of shale gas deposition
- Mineral composition of shale rocks
- Clay mineralogy of shale rocks
- Diagenetic alteration of shale rocks
- Use of geochemistry for shale reservoir identification – Ro, Tmax, Kerogen type
- Evaluation of shale gas
- Shale as a source, cap and reservoir rock forming a petroleum system
- Shale reservoir types
- Naturally occurring fractured shale reservoirs – why some shales are fractured and how to identify them
- Shear and tensile fracture occurrence in shale
- Shale diapirism – where it is expected
- Ductile and brittle shale – the difference they make

12:00 – 1:00 p.m.

Group Luncheon

1:00 – 4:15 p.m.

Logging, Petrophysics, Reserves Assessment and Drilling

- Logging and petrophysical assessment
- OGIP determination (free gas, adsorbed gas, Langmuir isotherms)
- Why horizontal drilling is important for shale gas development, not vertical
- Placement and orientation of horizontal wells
- Seismic as a guide for horizontal well placement
- Choice of optimal horizontal length
- Spacing of horizontal wells
- Avoidance of geological hazards and role of 2D and 3D seismic

WEDNESDAY, SEPTEMBER 22, 2010

8:00 – 8:45 a.m.

Continental Breakfast

8:45 – 9:00 a.m.

Introduction, Logistics and Overview of Day 2

9:00 a.m. – 12:00 p.m.

In Situ Stress Determination and Hydraulic Fracturing

- Measurement of stress regime in shale intervals
- Multi-stage fracturing in horizontal wells – key to success in shale gas development
- Sizing of fracture stages
- Choice of proppant size and strength, and fracture fluid
- Slick water frac, proppant placement in horizontal wells
- When not to use waters as a frac fluid
- Dendritic and longitudinal fractures
- Fracture height growth and containment
- Simultaneous fracturing
- Stress alteration and refracturing

12:00 – 1:00 p.m.

Group Luncheon

1:00 – 4:15 p.m.

Production, Simulation, Surveillance, Economics

- Recovery from shale gas and its pattern
- Production decline, analysis, EUR and recovery factor
- Microseismic monitoring of fracture growth and propagation
- Pitfalls of microseismic
- Other surveillance techniques
- Technology to better characterize and model shale reservoirs – simulation
- Technology to maximize production from shale gas reservoirs
- Gas price forecast and economics of shale gas development and production
- Occurrences of shale gas in the U.S. and their characteristics
- Future trends and directions
- Q&A
- Hands-on exercise or discussion session where appropriate
- Concluding remarks

SHALE GAS: A GLOBAL ENERGY ALTERNATIVE AND TECHNICAL ASPECTS OF SHALE GAS DEVELOPMENT

September 20-22, 2010

INSTRUCTOR

Selim Hannan, Ph.D., P.Eng., MBA

Dr. Selim Hannan is a diversified professional engineer with more than 23 years of experience in the petroleum industry, working on conventional oil and gas, heavy oil, oil sands, deep gas, tight gas, oil shale, shale oil, and shale gas projects. His domestic and international work experience have been with multinational energy companies, national and foreign oil companies, service companies, government agencies (federal and provincial/state), consulting companies, and educational institutions. Dr. Hannan's key competencies are in reservoir simulation, hydraulic fracturing, well testing and pressure transient analysis, estimation of oil and gas reserves, field development planning, evaluation of oil and gas properties, acquisition and divestments, well log and petrophysical analysis, workover and stimulation, production optimization, water flooding, thermal recovery processes (SAGD, steam and gas-steam stimulation, steam drive, electrical heating), EOR, horizontal well technologies, geology and geomechanics, R&D, scientific and engineering auditing, training, and technology transfer.

Dr. Hannan has always been at the forefront of the development of leading-edge technologies of the petroleum industry. He is considered an authority in shale reservoir (shale gas, shale oil and oil shale) development. He was the first to introduce a petroleum geomechanics training course in the Canadian oil patch. He has made several presentations at workshops, conferences, forums and technical meetings. Dr. Hannan is the founder and president of Reservoir IntelliLogic, a Texas-based engineering and geosciences company offering consulting services to the energy industry in various sectors such as shale reservoir development, hydraulic fracturing and stimulation, production optimization, acquisition and divestment, oil and gas properties evaluation, reservoir engineering simulation, reservoir geomechanics studies, log analysis and interpretation, reservoir geophysics, basin analysis and training. Dr. Hannan holds degrees in petroleum engineering, geosciences and business management from Gubkin Russian State University of Oil and Gas, the University of Toronto and Heriot-Watt University. Dr. Hannan has authored and co-authored technical books, publications and reports. He is multilingual.

Over the years, Dr. Hannan has developed course curriculum for numerous business and technical courses for petroleum industry professionals and delivered them through professional organizations, continuing and adult education programs, universities and community colleges. Dr. Hannan is a member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA).

NEARBY HOTELS

Fairmont Palisar

133 9th Ave SW
Calgary, AB T2P2M3
403-262-1234

(About a 5 minute walk to the Hyatt Regency Vancouver)

Delta Bow Valley

209 4th Ave SE
Calgary, AB T2J5X5
403-266-1980

(About a 5 minute walk to the Hyatt Regency Vancouver)

The Westin Calgary

320 4th Avenue SW
Calgary, Alberta T2P 2S6
403-266-1611

(About a 7-8 minute walk to the Hyatt Regency Vancouver. A taxi will take approximately 5 minutes.)

Register Today! Call (201) 871-0474

LOCATION

A room block has been reserved at the Hyatt Regency Calgary, 700 Centre Street Southeast, Calgary, AB T2G 5P6, Canada, for the nights of September 19-20, 2010. Room rates are \$199 CAD single/double, plus applicable tax. Call 403-717-1234 for reservations and mention the EUCI course to get the group rate. Make your reservations prior to August 30, 2010. There are a limited number of rooms available at the group rate. **Please make your reservations early.** For the nights of September 21 & 22 2010, please see nearby hotels listed on page 6.

REGISTRATION INFORMATION

REMEMBER, EVERY FOURTH REGISTRANT IS FREE

For instant Registration call (201) 871-0474, or Fax the registration form to (253) 663-7224.

Register Three, Send Fourth Free!

Any organization wishing to send multiple attendees to this course may send one FREE for every three delegates registered. Please note that all registrations must be made at the same time to qualify.

All cancellations received on or before August 20, 2010 will be subject to a \$195 processing fee. Written cancellations received after this date will create a credit of the tuition (less processing fee) good toward any other EUCI conference or publication. This credit will be good for six months. In case of conference cancellation, Electric Utility Consultants' liability is limited to refund of the conference registration fee only. For more information regarding administrative policies such as complaints and refunds, please contact our offices at (201) 871-0474.

EUCI reserves the right to alter this program without prior notice.

MAIL DIRECTLY TO:

The Power Marketing Association (PMA)
P.O. Box 2303
Falls Church, VA 22042

FAX TO:

(253) 663-7224

PHONE:

(201) 871-0474

PLEASE REGISTER THE FOLLOWING

- Best Value:** Discounted Registration for attending both courses
September 20-22, 2010: US \$2095 plus 5% GST (US \$2199.75)
Early Bird on or Before September 10, 2010: US \$1895 plus 5% GST (US \$1989.75)
- Shale Gas: A Global Energy Alternative
September 20, 2010: US \$895 plus 5% GST (US \$939.75)
Early Bird on or Before September 10, 2010: US \$795 plus 5% GST (US \$834.75)
- Shale Gas: Technical Aspects of Shale Gas Development
September 21-22, 2010: US \$1495 plus 5% GST (US \$1569.75)
Early Bird on or Before September 10, 2010: US \$1295 plus 5% GST (US \$1359.75)

ENERGIZE WEEKLY

When you sign up for "Energize Weekly," you will receive a new conference presentation each week via e-mail on a relevant industry topic. The presentations are selected from a massive library of more than 1,000 current presentations that EUCI has gathered during its 23 years organizing conferences.

Sign me up for "Energize Weekly"

How did you hear about this event? (direct e-mail, colleague, speaker(s), etc.) _____

Name _____ Job Title _____

Name Preferred for Badge _____ E-Mail _____

Company _____ Telephone _____

Address _____ City _____ State _____ Zip _____

PAYMENT METHOD

Please make checks payable to "PMA"

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Or enclosed is a check for \$ _____ to cover _____ registrations.

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